# BDS–40 Monitor

## Product Description Guide

Alber

*Trust Your Batteries*

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**BDS-40 Monitor Product Description Guide**

| | |
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| 4.3 | 06/08/2012 | Added new cabinet options and configurations. | MS |
| | | | |
| | | | |

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# Drawings

**Important Note**: The drawings in this manual may not be the most recent revision and are included for reference only. Refer to the Engineering Drawing Package included with your system for the newest drawings.

| | |
|---|---|
| General Assembly, Base Unit | BDS–377–D1695 |
| General Assembly, Plus Unit | BDS–378–D1695 |

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# 1. Product Description

The BDS-40 is a stand-alone monitor for UPS applications and is designed for use with UPS battery cabinets. Albér monitors provide early warning detection of battery problems. The monitor checks the state of health of each cell by performing a proactive resistance test, a reliable predictor of battery performance. In addition, to indicate immediate battery health and monitor status of a given location, the system reports to a Central computer a generic PC displaying status screens.

Using polling and data transfer algorithms, the Battery Monitor Data Manager BMDM software program with a PC help to manage over 1000 monitor systems. Data is stored in the computer database for later analysis and reporting. At any time, service personnel may call a battery location from the Central computer or a remote location, or directly connect to the monitor without losing contact with the computer.

The Data Manager string and monitor status indicators make central battery monitoring easy. Terms such as Discharging, Alarm or Warning for string status or Active for monitor status quickly summarize events. Conditions reported to the Central computer are displayed as a list, to easily identify trouble spots. The system also features several methods of automated reporting of alarm occurrences, such as contacting key personnel via a pager, email or fax.

Flexibility was a major design consideration. Because the monitors are stand-alone units with no external computer needed, a primary protocol using Modbus ASCII was selected for easy incorporation of the monitor into large-scale facility monitors. This allows third-party interfaces to access all the stand-alone features of the monitor, yet leaves the advanced features of the BMDM remote communication software available for service personnel.

## 1.1 Normal Operating Mode

In normal mode, the system scans all parameters in one to five seconds, depending on the configuration. As readings are taken, they are compared to user-programmed alarm levels. The monitor can then call a Central computer and energize an alarm contact if a parameter exceeds a level. Front panel LEDs indicate scan and alarm status, and alarm events are stored in memory for future analysis. The BDS can be programmed for critical and maintenance alarms.

## 1.2 Discharge Mode

If a discharge is detected, the system goes into a data logging mode and stores battery voltages and discharge current into a discharge record.

## 1.3 Resistance Test Mode

A battery resistance test may be performed at user-set intervals. The test is similar to that performed by the Albér Cellcorder. On a BDS-40, up to ten intertiers can be configured for this measurement.

## 1.4 Alarm Features

The monitor may be set to automatically call the Central computer to report an alarm condition when detected. You can program high and low alarm levels on all voltage and temperature parameters, and a high alarm level for resistance. When a parameter goes outside the normal range, the monitor stores the event in memory, the Alarm LED lights, and an alarm relay with a Form C contact energizes. The alarms may be set for latching or nonlatching.

## 1.5 Features

This section describes standard and optional BDS-40 features.

- Scans all pertinent battery parameters, such as overall voltage, cell voltages, current, and temperature.
- Performs a scheduled resistance test of all cells/jars and intertiers, and stores results for trending analysis.
- Auto detects discharges based on Overall Volts or Discharge Current, and stores data for real time or accelerated time playback.
- Signals if any parameter is outside user-programmed limits, energizes a Form C relay contact, and calls a Central computer to report the alarm condition.
- Communicates with an external computer via USB, RS-232, modem, and LAN.
- Network compatible.

## 1.6 Battery Monitor Data Manager BMDM Program Features

- Windows™ 2000, XP, 7 and 8 compatible Central computer control software.
- Easy to read string and monitor status.
- Automatic polling for over 1000 monitor sites for monitor and string status reporting.
- Historical event list for complete string history.
- Automatically receives calls from monitors and updates the central database for data analysis.
- Service mode for service personnel, and local RS-323 and USB direct connect viewing of string details and system setup when loaded on a laptop computer.
- Microsoft Access™ database compatible, with management of all stored data.
- Playback of discharge rundown test and controlled rundown test data.
- Automatic paging, emailing, and faxing of alarm events.
- Instant Trend graphs of any selected parameter
- Complete memo tracking down to the cell/module level.
- Status display can be customized for multi–customer monitoring.
- Network compatible.
- SQL server compatible

## 1.7 Optional Accessories

- Hall effect Current Transducer (CT) for measuring discharge and float current.
- Temperature sensor: Electrolyte Probe or Contact Ambient Probe.
- Network interface.
- Modem

# 2. Panel Controls and Indicators

This section describes the front and rear panels of the discreet components that comprise a typical BDS–40 system. Additional descriptions may appear elsewhere in this manual or in related manuals.

**Note**: Drawings in this manual may be for reference only or superseded by later drawings. For the latest information, refer to the drawings supplied with your system.

Panel indicator colors are:

- Red (R)
- Yellow (Y)
- Green (G)

## 2.1 BDS–40 System

The BDS–40 system consists of a BDS-40 Data Collection Module:

- BDS–40 Controller Module
- BDS–40 Data Collection Module

## 2.2 Status TX, RX and Service-Upper

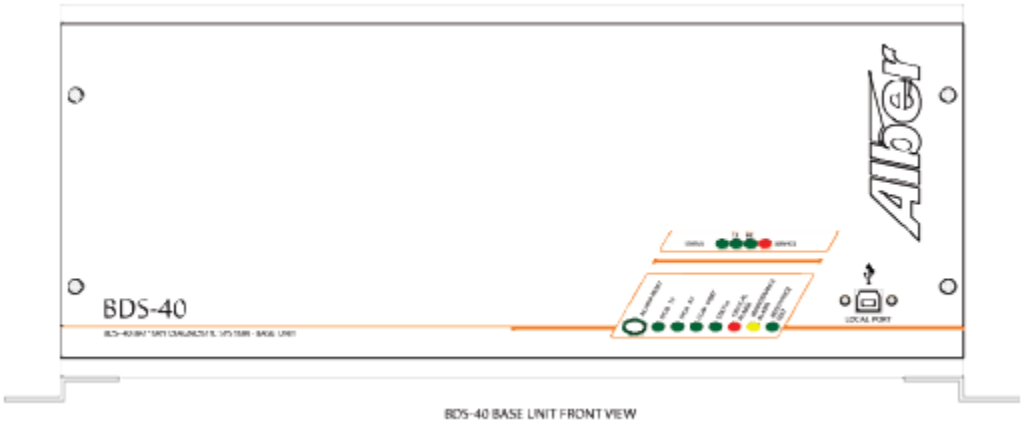


**Figure 1. BDS-40 Base Unit Front View**

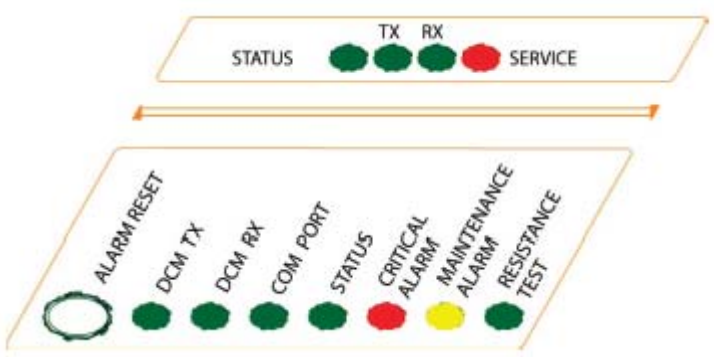


**Figure 2. BDS-40 Base Unit Front Panel Indicators in Color**

| | |
|---|---|
| Status (G) Upper | Flashes during normal operating conditions |
| TX Green (G) | Flashes during fiber optic transmit |
| RX Green (G) | Flashes during fiber optic receive |
| Service Red (R) | Unit Requires factory service, usually because internal temperature exceeded specifications. |

### DCM TX and RX, COM Port, Critical Alarm, Maintenance Alarm, and Resistance Test-Lower

| | |
|---|---|
| DCM TX Green (G) | Flashes during fiber optic transmit. |
| DCM RX Green (G) | Flashes during fiber optic receive. |
| Status Green (G) Lower | Flashes during normal operating conditions. |
| COM Port Green (G) | Flashes to indicate communication via LAN port or an incoming call. |
| Critical Alarm Red (R) | Critical alarm detected |
| Maintenance Alarm Yellow (Y) | Maintenance alarm detected |
| Resistance Test Green (G) | Performing a manual or automatic resistance test |

## Local Port/USB Connector

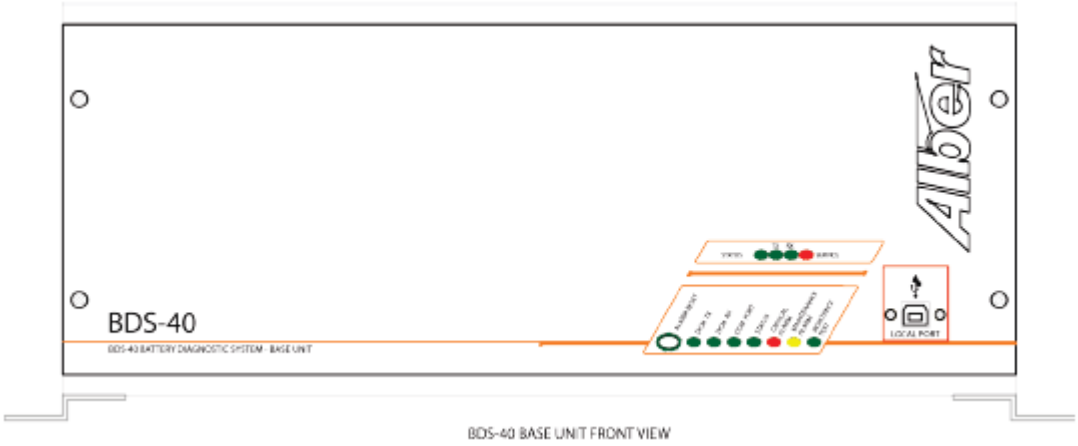


**Figure 3. BDS-40 Local Port on Front Panel-USB**

**LOCAL PORT** USB port. Connects to a laptop computer.

## Alarm Reset Switch

During normal operation, clears latched alarms. If held during power up, clears existing names in the BDS, disables alarms, disables dial out, and resets the password to “alber”.

**Figure 4. Alarm Reset Switch**

**Base Unit Controller Connectors-Rear Panel**

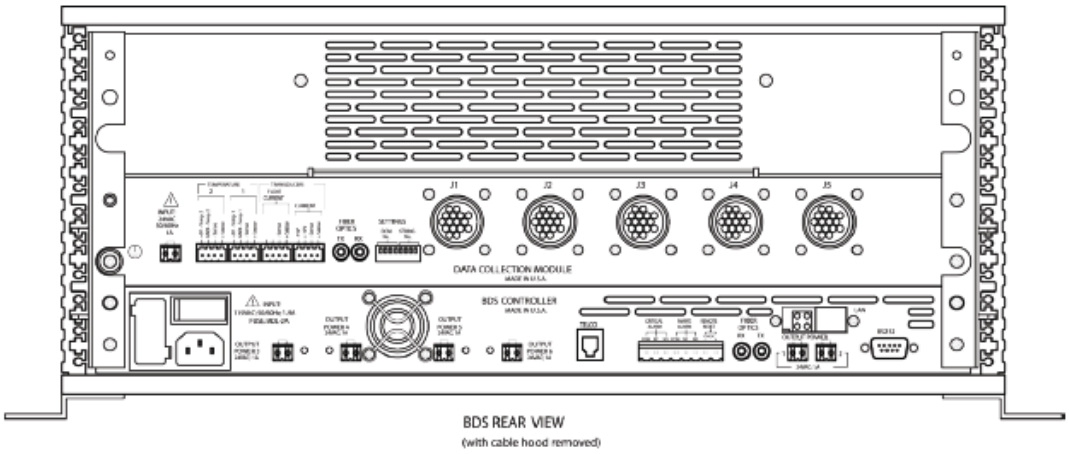


**Figure 5. Base Unit Rear Panels**

## Input, Output, TELCO, Critical Alarm, Maintenance Alarm, Remote Reset, Fiber Optics, LAN, and Local

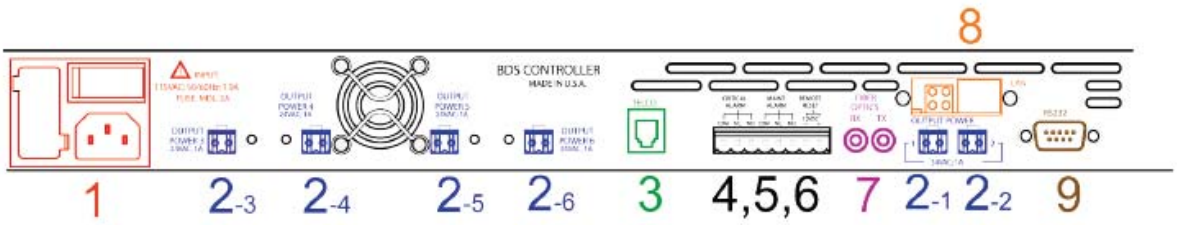


**Figure 6. BDS-40 Base Unit Controller Rear Panel Connectors**

| | | |
|---|---|---|
| 1. | Input 115VAC 50/60Hz or 230VAC 50/60Hz (optional) AC Power block | User replaceable fuse and receptacle for AC power cord Power switch for system on/off. |
| 2. | Output Power 1 to 6 | Up to six connectors providing DCM power 24VAC at 1A. (Configuration dependent) |
| 3. | TELCO | RJ-11 jack. Option dependent Communicates with a remote computer via telephone. |
| 4. | Critical Alarm | Form C alarm contacts, software configurable. |
| 5. | Maintenance Alarm | Form C alarm contacts, software configurable. |
| 6. | Remote Reset | Reads momentary contact closure. Requires a user-supplied 12V signal. |
| 7. | Fiber Optics Rx and Tx | Fiber optic receive / transmit ports for system communication. |
| 8. | LAN | Optional RJ-45 port. Communicates with a remote computer via network. |
| 9. | Local | DB-9 RS-232 port. |

## Base Unit DCM Connectors-Rear Panel

## Input, Temperature, Transducers, Fiber Optics and J1 through J5

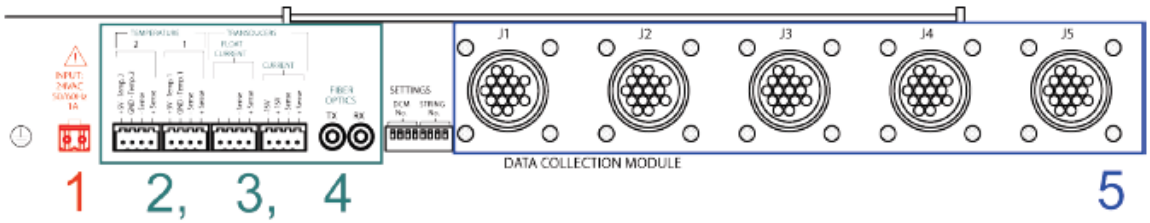


**Figure 7. Base Unit DCM Rear Panel Connectors**

| | |
|---|---|
| 1. Input 24VAC 50/60Hz AC Power | For 24VAC power. |
| 2. Temperature 1 and 2 | For Temperature Sensors |
| 3. Transducers-Float Current and Discharge Current | For Float Current and Discharge Current Transducers |
| 4. Fiber Optics TX and RX | Fiber optic transmit / receive ports for String communication. |
| 5. J1 through J5 | Connects voltage sense and resistance test leads to the batteries. |

### Base Unit DCM Controls – Rear Panel

### Settings – DCM Number and String Number

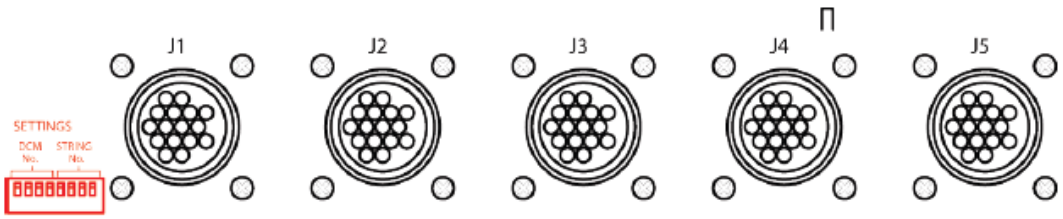


**Figure 8. BDS–40 Base Unit DCM Controls**

| | |
|---|---|
| Settings - DCM Number and String Number | DIP switches<br>Set string identification<br>DCM number |

## Plus Unit Indicators-Front Panel

**Figure 9. BDS-40 Plus Front Panel**

The BDS-40 Plus Unit is a Data Collection Module.

### Status, TX, RX, and Service

**Figure 10. BDS-40 Plus Front Panel Status Indicators**

| | |
|---|---|
| Status Green (G) Upper | Flashes during normal DCM operating conditions |
| TX Green (G) | Flashes during fiber optic transmit |
| TX Green (G) | Flashes during fiber optic receive |
| Service Red (R) | Unit requires factory service, usually because internal temperature exceeded specifications or over current during resistance test. |

**Plus Unit Connectors-Rear Panel**

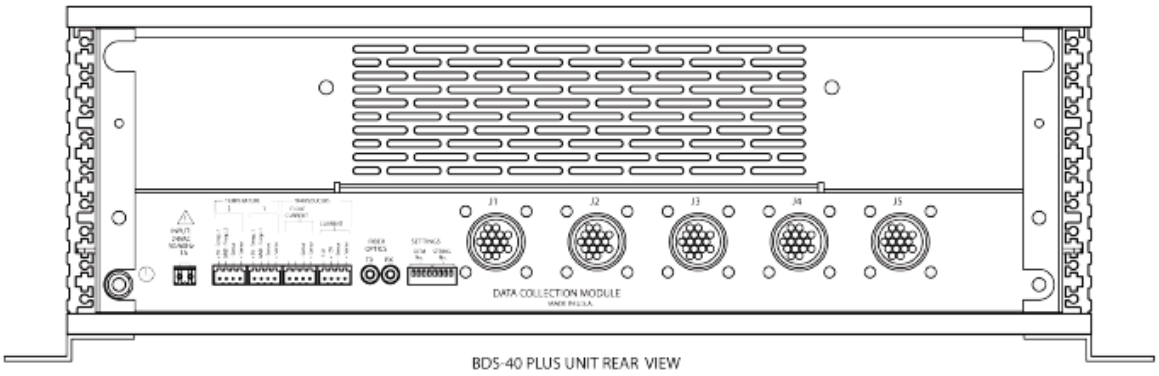


**Figure 11. BDS-40 Plus Unit Rear Panel**

**Input, Temperature, Transducers, Fiber Optics, J1 though J5**

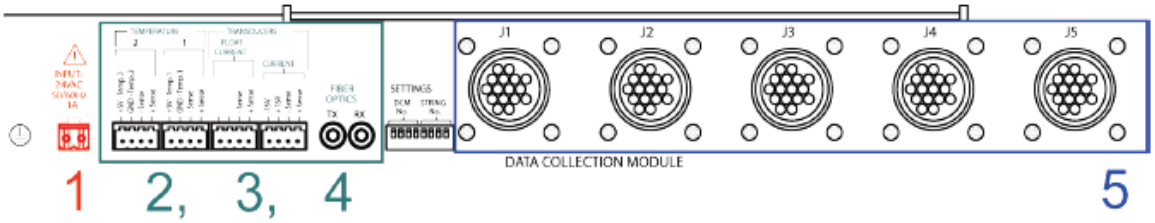


**Figure 12. BDS-40 Plus Unit Controller Rear Panel Connectors**

| | |
|---|---|
| 1. Input 24VAC 50/60Hz AC Power | For 24VAC power. |
| 2. Temperature 1 and 2 | For Temperature Sensors |
| 3. Transducers - Float Current and Current | For Float Current and Discharge Current Transducers |
| 4. Fiber Optics TX and RX | Fiber optic transmit / receive ports for String 1 communication. |
| 5. J1 through J5 | Connects voltage sense and resistance test leads to the batteries. |

**Plus Unit DCM Controls – Rear Panel**

**Settings – DCM Number and String Number**

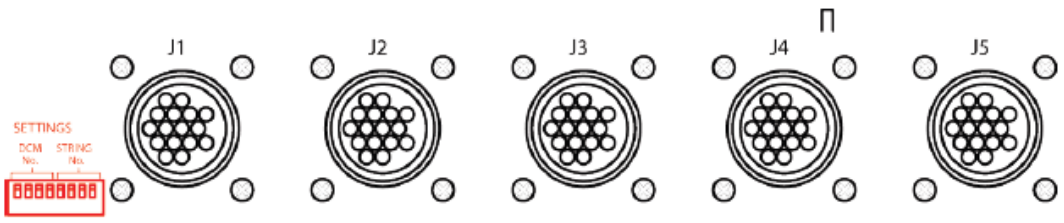


**Figure 13. BDS–40 Base Unit DCM Controls**

| | |
|---|---|
| Settings - DCM Number and String Number | DIP switches. Set string identification and DCM number. |

# 3. Configurations

This section is an overview of the BDS-40 monitor configurations. The BDS-40 model numbers are structured as follows. Thus, a typical model number might be 1003-750A CRAA21.

1003-nnn XXxxxxxx required for 16V jars (1002-nnn may be substituted with 1003-nnn if monitoring 12V jars)

The BDS-40 model is 1003, followed by:

- 750 to indicate a Base Unit
- 751 to indicate a Plus Unit

The following group of letters and numbers indicate cabinet options and open rack configurations:

## 3.1 BDS-40 Monitor Cabinet Configurations

| Position XXxxxxxx<br><br>Cabinet Options | Cabinet Configurations |
|---|---|
| A_xxxxxx | 1X40X12, 10S of 4J |
| B_xxxxxx | 1X40X12, 4S of 10J |
| C_xxxxxx | 1X36X12, 4S of 9J |
| D_xxxxxx | 1X36X12, 3S of 12J |
| E_xxxxxx | 1X30X12, 5S of 6J |
| F_xxxxxx | 1X30X12, 10S of 3J |
| G_xxxxxx | 1X40X12, 4S,12,12,8, of 8J |
| H_xxxxxx | 1X40X12, 8S of 5J |
| I_xxxxxx | 1X40X12, 5S of 8J |
| J_xxxxxx | 1X30X12, 3J, 6S of 4J, 3J |
| K_xxxxxx | 1X30X12, 6J, 3S of 8J |
| L_xxxxxx | 1X20X12, 4S of 5J |
| M_xxxxxx | 1X32X12, 4S of 8J |
| N_xxxxxx | 4S of 8J or 3S 8J and 2S 4J |
| O_xxxxxx | 1X29X12, 1S of 5J and 3S of 8J |
| P_xxxxxx | 1X30X12, 4S of 8,8,8 of 6J |

## BDS-40 Monitor Cabinet Configurations (Continued)

| Position XXxxxxxx<br><br>Cabinet Options | Cabinet Configurations |
|---|---|
| Q_xxxxxx | 1X20X12, 4S of 6,6,6 of 2J |
| R_xxxxxx | 1X30X12, 2S of 15J |
| S_xxxxxx | 1X30X12, 3S of 10J |
| T_xxxxxx | 1X40X12, 4S of 6,12,12, of 10J |
| U_xxxxxx | 1X30X12, 6S of 5J |
| V_xxxxxx | 1X20X12 4S of 2,6,6, of 6J |
| W_xxxxxx | 1X24X12, 8S of 3J |
| X_xxxxxx | 1X40X12, 2S of 20J |
| Y_xxxxxx | 1X40X12, 2S of 15 and 1S of 10J |
| Z_xxxxxx | 1X30X12, 6S of 4J and 2S of 3J |
| 01xxxxxx | 1X24X12, 6S of 4J |
| 02xxxxxx | 1X33X12, 1S of 33J |
| 03xxxxxx | 1X33X12, 1S of 15J and 1S of 18J |
| 04xxxxxx | 1X40X12, 1S of 6J, 4S of 7J and 1S of 6J |
| 05xxxxxx | 1X32X12, 1S of 32J |
| 06xxxxxx | 1X26X12, 1S of 8J and 2S of 9J |
| 07xxxxxx | 1X18X12, 2S of 9J |

## BDS-40 Monitor Cabinet Configurations (Continued)

| Position XXxxxxxx<br><br>Cabinet Options | Cabinet Configurations |
|---|---|
| 08xxxxxx | 1X40X12, 2S of 12, 1S of 9J and 1S of 7J |
| 09xxxxxx | 1X32X12, 2S of 9J, 1S of 5J and 1S of 9J |
| 10xxxxxx | 1X40X12, 3S of 13, 13, of 14J |
| 11xxxxxx | 1X20X12, 3S of 7,6, of 7J |
| 12xxxxxx | 1X36X12, 9S of 4J |
| 13xxxxxx | 1X33X12V, 1S of 4J, 4S of 6J, 1S of 5J |
| 14xxxxxx | 1X40X12V, 4S of 4J, 4S of 6J |
| 15xxxxxx | 1X36X12V, 4S of 8J, 1S of 4J |
| 16xxxxxx | 1X36X12V, 1S of 5J, 2S of 3J, 5S of 5J |
| 17xxxxxx | 1X30X16V, 10S of 3J |
| 18xxxxxx | 1X30X16V, 5S of 6J |
| 19xxxxxx | 1X34X12V, 1S of 10J, 2S of 12J |
| 20xxxxxx | 1X20X12V, 5S of 4J |
| 21xxxxxx | 1X36X12V, 2S of 18J |
| 22xxxxxx | 1X34X12V, 3S of 9J, 1S of 7J |
| 23xxxxxx | 1X30X12V, 1S of 14J, 1S of 16J |
| 24xxxxxx | 1X36X12V, 4S of 10,8,10,8J |

| Position XXxxxxxx<br><br>Cabinet Options | Cabinet Configurations |
|---|---|
| 25xxxxxx | 1X32X12V, 3S of 2J, 8S of 3J, 1S of 2J |
| 26xxxxxx | 1X30X12V, 8S of 4J |
| 27xxxxxx | 1X24X12V, 4S of 6J |
| 28xxxxxx | 1X30X16V, 6S of 5J |
| 29xxxxxx | 1X40X12V, 6S of 2S8J, 2S4J, 2S8J |
| 30xxxxxx | 1X18X12V, 3S of 6J |
| 31xxxxxx | 1X24X12V, 3S of 8J |
| 32xxxxxx | 1X30X12V 2S of 12J, 1S of 6J |
| 33xxxxxx | 1X40X12V 3S of 12J, 1S of 4J |
| 34xxxxxx | 1X38X12V 9S of 4J, 1S of 4J |
| 35xxxxxx | 1X40X12V 5S of 7J, 1S OF 5J |
| 36xxxxxx | 1X40X12V 1S of 24J, 1S OF 16J |
| 37xxxxxx | 1X32X12V 1 of 2 Dual Battery Cabinet |
| 38xxxxxx | 1X32X12V 2 of 2 Dual Battery Cabinet |
| 39xxxxxx | 1X36X12V 3S of 10J, 1S of 6J |
| 40xxxxxx | 1X40X12V 6S of 6J, 1S of 4J |
| 41xxxxxx | 1X40X12V 4S of 6J, 4S of 4J |
| 42xxxxxx | 1X40X12V 1S of 4J, 6S of 6J |
| 43xxxxxx | 1X40X12V 1S of 4J, 3S of 12J |

**Note**: If your configuration is not in this list consult your Alber Representative for the most up-to-date configuration list.

## 3.2 BDS-40 Monitor Open Rack Configurations

| Position XXxxxxxx<br><br>Open Rack Options | Open Rack Configurations |
|---|---|
| 70xxxxxx | 1X17X12 |
| 71xxxxxx | 1X18X12 |
| 72xxxxxx | 1X19X12 |
| 73xxxxxx | 1X20X12 |
| 74xxxxxx | 1X21X12 |
| 75xxxxxx | 1X22X12 |
| 76xxxxxx | 1X23X12 |
| 77xxxxxx | 1X24X12 |
| 78xxxxxx | 1X25X12 |
| 79xxxxxx | 1X26X12 |
| 80xxxxxx | 1X27X12 |
| 81xxxxxx | 1X28X12 |
| 82xxxxxx | 1X29X12 |
| 83xxxxxx | 1X30X12 |
| 84xxxxxx | 1X31X12 |
| 85xxxxxx | 1X32X12 |
| 86xxxxxx | 1X33X12 |

## BDS-40 Monitor Open Rack Configurations (Continued)

| Position XXxxxxxx<br><br>Open Rack Options | Open Rack Configurations |
|---|---|
| 87xxxxxx | 1X34X12 |
| 88xxxxxx | 1X35X12 |
| 89xxxxxx | 1X36X12 |
| 90xxxxxx | 1X37X12 |
| 91xxxxxx | 1X38X12 |
| 92xxxxxx | 1X40X12 |
| 93xxxxxx | 1X30X16 |

**Note**: If your configuration is not in this list consult your Alber Representative for the most up-to-date configuration list.

| **Position xxXxxxxx** | |
|---|---|
| | Discharge Current |
| C | Current Transducer |
| N | None |

| **Position xxxXxxxx** | |
|---|---|
| | Sense Lead Protection |
| R | Resistor |
| F | Fuse |

| **Position xxxxXxxx** | |
|---|---|
| | OEM |
| A | Alber |

| **Position xxxxxXxx** | |
|---|---|
| | Communication |
| A | Modem |
| B | LAN |
| C | Both |
| D | None |

| **Position xxxxxxXx** | |
|---|---|
| | Number of Strings |
| 2 | 1 to 2 |
| 4 | 3 to 4 |
| 6 | 5 to 6 |

| **Position xxxxxxX** | |
|---|---|
| | Power |
| 1 | 115VAC |
| 2 | 230VAC |

# 4. Specifications

## 4.1 BDS–40 Base Unit

**Power**

- 115/230VAC ±10% 50/60Hz 2 Amps maximum for a maximum configuration of one Base unit and five plus units with a total of 40 jars.

**Fuses**

- One 1A MDL for each string On PC board Not user replaceable
- One 2A SB, MDL or equivalent AC power block rear panel

**Inputs**

- 24VAC.
- 40 cell voltage channels.
- Remote alarm reset. User-supplied 12V signal. (Current 50mA maximum.) Momentarily applying voltage initiates the reset action.
- Ten intertier resistance channels for cabinet configurations.
- Eight interiors maximum for Open Rack Configurations:
  - 0-20 jars = 4 intertiers
  - 21-30 jars = 6 intertiers
  - 31-40 jars = 8 intertiers
- Two temperature channels.*
- One discharge current channel.*
- One float current channel.*

*Optional temperature and current transducers are required.

**Outputs**

- 24VAC power for up to five plus units.
- Alarm contacts: Two Form C, 2A at 30VDC. One for critical alarm, and one for maintenance alarm.

  LEDs (one each):
  - **Green (G)** DCM TX transmit
  - **Green (G)** DCM RX receive
  - **Green (G)** status
  - **Green (G)** com port
  - **Yellow (Y)** critical alarm
  - **Yellow (Y)** maintenance alarm
  - **Green (G)** resistance test
  - **Green (G)** DCM status
  - **Green (G)** TX transmit
  - **Green (G)** RX receive
  - **Red (R)** service

**Parameters / Features**

- Number of cell channels: Up to six strings of 40 12-volt jars.

**Measurement Range / Tolerance**

- Cell voltage: 0 to 20V, 0.15% of reading ±4mV
- Cell resistance: 0 to 32,000μΩ, 5% of reading ±1μΩ
- String voltage: 0 to 600.0V, 0.2% of reading ±0.5V
- Intertier resistance: 0 to 5mΩ, 5% of reading ±5μΩ.
- Temperature: 0°C to 80°C (32°F to 176°F), ±1°C.
- Discharge current: 0 to 4000A ±5% of full scale (using CT)
- Float current: 0 to 5000mA ±50mA.

*Optional current transducer required.
*Transducer accuracy affects overall current reading accuracy.

**Communication**

- Protocol: MODBUS, and SNMP.
- Local port, USB connector–front panel
- Local port, RS–232 DB–9 connector –rear panel
- LAN port, RJ–45–Optional; rear panel
- RJ–11 TELCO line, internal 14.4Kbs modem–rear panel (optional)
- Fiber optic ports: two for system communications

**Data Storage**

- SRAM (8 MB) nonvolatile memory for all configuration settings and data
- Flash memory for firmware upgrades

**Control Switches**

- Power on/off: Main DCM power switch on rear panel of BDS Controller module. Rocker switch.
- Alarm Reset switch on front panel of BDS Controller module. Momentary push button.
- DCM and String ID: DIP switch on rear panel for setting string identification.

**Operating Environment**

- Temperature range: 5°C to 40°C (41°F to 104°F).
- Humidity range: 0% to 80% RH (non condensing) at 5°C to 31°C.
  0% to 50% RH (non condensing) at 32°C to 40°C.
- Indoor use only.
- Installation category II.
- Pollution degree 2.
- Altitude 0 to 2000 meters above sea level.

**Dimensions**

- 19"W x 16.2"D x 7.8"H
- 34 lbs.

**Agencies**

- UL listed. File number E212234
- CE approved

## 4.2 Plus Unit

**Power**

- Less than 1 amp at 24VAC ±10%

**Fuses**

- Two 0.75A SB on PC board. **Note**: Not user replaceable.

**Inputs**

- 24VAC.
- 40 cell voltage channels.
- Ten intertier resistance channels for cabinet configurations.
- Eight intertiers maximum for open rack configurations.
- 0-20 jars = 4 intertiers
- 21-30 jars= 6 intertiers
- 31-40 jars= 8 intertiers
- Two Temperature channels.*
- One discharge current channel.*
- One float current channel.*

*Optional temperature and current transducers are required.

**Outputs**

- +15VDC, –15VDC power output (optional) for discharge current transducer.
- LEDs (one each):
  **GREEN (G)** DCM status
  **GREEN (G)** TX transmit
  **GREEN (G)** RX receive
  **Red (R)** service

**Parameters / Features**

- Number of cell channels: 40 12-volt jars.

**Measurement Range / Tolerance**

- Cell voltage: 0 to 20V, 0.15% of reading ±4mV
- Cell resistance: 0 to 32,000μΩ, 5% of reading ±1μΩ
- String voltage: 0 to 600.0V, 0.2% of reading ±0.5V
- Intertier resistance: 0 to 5mΩ, 5% of reading ±5μΩ.
- Temperature: 0°C to 80°C (32°F to 176°F), ±1°C.
- Discharge current: 0 to 4000A...±5% of full scale (using CT)
- Float current 0 to 5000mA ±50mA

*Optional current transducer required.
*Transducer accuracy affects overall current reading accuracy.

**Communications**

- Fiber optic Albér proprietary

**Data Storage**

- $E^2$ nonvolatile memory for setup
- Flash memory for firmware upgrade

**Control Switches**

- DIP switch on rear panel for setting string identification

**Operating Environment**

- Temperature range: 5°C to 40°C (41°F to 104°F)
- Humidity range: 0% to 80% RH (non condensing) at 5°C to 31°C.
  0% to 50% RH (non condensing) at 32°C to 40°C.
- Indoor use only.
- Installation category II.
- Pollution degree 2.
- Altitude 0 to 2000 meters above sea level.

**Dimensions**

- 19"W x 16.2"D x 6.1"H
- 25 lbs.

**Agencies**

- UL listed. File number E212234.
- CE approved.